

## **12.0 EMERGENCY MANAGEMENT PROGRAM**

### **12.1 Purpose of Review**

The purpose of this review is to confirm that the applicant has committed through an emergency management program to establish an emergency plan to protect the public, the workers, and the environment during operational emergencies at the facility. The emergency plan provides an organized plan of action, identifies authorities and responsibilities of emergency response personnel and organizations, and identifies the manpower and equipment available during operational emergencies.

### **12.2 Responsibility for Review**

Primary: Emergency Management Specialist

Secondary: Certification Project Manager

Supporting: Emergency Preparedness Inspector

### **12.3 Areas of Review**

The staff will review the applicant's submittal for an acceptable level of evidence of planning for emergency preparedness directed at situations involving real or potential radiological or chemical hazards. Review of an application for recertification will address those design features, facilities, functions, and equipment that may affect some aspect of emergency planning or the capability of an applicant to cope with plant emergencies. In addition, the review should address coordination with offsite organizations. The review is made against requirements in 10 CFR 76.91 and the guidance contained in the acceptance criteria below, or acceptable requirements are met for justification that an emergency management program is not needed.

### **12.4 Review Procedures**

#### **12.4.1 Acceptance Review**

The staff review should start with the primary reviewer's determination that sufficient information has been provided in the contents of the application to satisfy the requirements in 10 CFR 76.35, "Contents of Application," and 10 CFR 76.36, "Renewals," with respect to emergency management for gaseous diffusion plants (GDPs)—see Standard Review Plan (SRP) Section 12.5.1, "Regulatory Requirements"—and that the topics discussed in SRP Section 12.3, "Areas of Review," have been addressed.

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If significant deficiencies are identified in the application, the applicant should be requested to submit additional material before the primary reviewer starts the application review.

### **12.4.2 Evaluation**

The review consists of an evaluation of the emergency planning information submitted by the applicant using the acceptance criteria provided below. Although the bulk of this information should be found in the emergency management program section of the application, the primary and secondary reviewers should gain familiarity with the site, including the emergency planning zones, demography, land use, plant design and layout, and major accidents postulated by the applicant presented in relevant sections of the Safety Analysis Report (SAR).

The detailed application of the acceptance criteria will, in many instances, require the reviewer to exercise judgment. The reasonableness and adequacy of the factors involved should be viewed in light of general emergency planning and response experience, bearing in mind that the singular broad objective of radiological and nonradiological hazardous chemical emergency plans is to protect the public by mitigating the potential health and safety consequences of radiation and hazardous chemical exposure. Ideally, such plans would ensure neither an overreaction nor an underreaction to unexpected events. Reviewers should be particularly alert, however, to provisions that may result in a possible underreaction to a serious event.

On the basis of its review, the staff may request that the applicant provide additional information or modify the submittal to meet the acceptance criteria in SRP Section 12.5.

The final step in the review is the Compliance Evaluation Report (CER). The CER should summarize the conduct of the review, identify what material in the application forms the basis for a finding of reasonable assurance with respect to the acceptance criteria for an acceptable emergency plan, and present the bases for certificate conditions that are necessary to conclude that reasonable assurance is achieved.

## **12.5 Acceptance Criteria**

The regulatory requirements, regulatory guidance, and regulatory review criteria applicable to this SRP are listed in the following sections:

### **12.5.1 Regulatory Requirements**

The regulatory requirements applicable to this section are as follows:

1. Section 76.35(f) of 10 CFR requires the applicant to submit an emergency plan that meets the requirements of 10 CFR 76.91.
2. Section 76.91 of 10 CFR describes the type of information to be included in the emergency plan.

### **12.5.2 Regulatory Guidance**

The NRC guidance applicable to the emergency management program that generally describes a basis acceptable to the staff for implementing the requirements in 10 CFR Part 76 are:

1. Nuclear Regulatory Commission (U.S.) (NRC). Policy and Guidance Directive 84-14, "Standard Review Plan for Emergency Plans for Fuel Cycle and Materials Licensees." NRC: Washington, D.C. March 1994.
2. Nuclear Regulatory Commission (U.S.) (NRC). Regulatory Guide 3.67, "Standard Format and Content for Emergency Plans for Fuel Cycle and Materials Facilities." NRC: Washington, D.C. January 1992.

### **12.5.3 Regulatory Review Criteria**

The staff should use the following regulatory review criteria or information demonstrating acceptable alternatives in its review of the application. Acceptability should be based on the requirements in 10 CFR 76.91. An acceptable emergency management plan should consist of the following functional areas.

#### **12.5.3.1 Site and Facilities Description**

Acceptance is based on the verification that the applicant has committed to provide a summary in the emergency plan of the site and facilities description consistent with the information provided in Chapter 1.0 of this SRP. The information is of sufficient depth to provide perspective about the facility and the certified activity such that the adequacy and appropriateness of the applicant's emergency planning, emergency organization, and emergency equipment can be evaluated. The review verifies that the applicant has provided, in the emergency plan, descriptions of onsite emergency facilities. The descriptions contain the principal and any alternative locations onsite from which control and assessment for an emergency will be exercised. To ensure the adequacy and readiness of the emergency facilities, the following design information is considered in the SAR:

1. Emergency facilities are identified by location and purpose of the facility.
2. Emergency facilities, equipment, and resources are adequate to support emergency response operations, based on the following:
  - a. Facilities of adequate size and appropriate location are designated, equipped, and ready for emergency use.
  - b. Adequate backup facilities required by the emergency plan and supporting documents are available and ready for use.
  - c. Appropriate equipment and supplies necessary to support emergency response activities are accessible during accident conditions.

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- d. Emergency equipment is inventoried, tested, and serviced on a periodic basis to ensure accountability and reliability.
  - e. Sufficient reliable primary and backup communications channels are available to accommodate emergency needs.
  - f. Offsite emergency resources are identified, and plans are made to ensure their timely mobilization and use.
  - g. Engineering materials, such as current as-built drawings and procedures, are readily available in the emergency facilities.
  - h. Sufficient equipment for personnel protection is available.
3. Emergency monitoring equipment is available for personnel and area monitoring, as well as for assessing the release of radioactive or hazardous materials to the environment.
  4. Onsite facilities are available for basic medical treatment and decontamination activities.
  5. Systems are in place, if required, to alert onsite personnel and notify offsite organizations in the event of an emergency.

### **12.5.3.2 Types of Accidents**

Acceptance is based on the verification that the applicant has committed to briefly summarizing in the emergency plan each accident for which protective actions may be needed. Information should be provided to the degree necessary to ensure the effectiveness of the emergency plan. The applicant provides:

1. A brief description of the process and physical location where each accident could occur, and for each accident a description of the scenario that has the potential for the greatest radiological/hazardous material impact.
2. A brief description of how the accident could happen (equipment malfunction, instrument failure, human error, etc.).
3. A brief description of complicating factors and possible onsite and offsite consequences.
4. A brief description of nonradioactive hazardous material releases that could impact emergency response efforts.

### **12.5.3.3 Classification of Accidents**

Acceptance is based on the verification that the applicant has committed to appropriate classification in the emergency plan of accidents involving potential or actual releases of radioactive or other hazardous material. The applicant's proposed classification system is

described. The system includes the following two classifications as specified in 10 CFR 76.91(c):

- **Alert:** Events that may occur, are in progress, or have occurred that could lead to a release of radioactive or hazardous materials, incident to the process, but that the release is not expected to require a response by offsite response organizations to protect persons offsite.
- **Site Area Emergency:** Events that may occur, are in progress, or have occurred that could lead to a significant release of radioactive or hazardous materials, incident to the process, that could require a response by offsite emergency response organizations to protect persons offsite.

For each accident treated by the emergency plan, the proposed classification and the emergency action levels are identified at which an alert or site area emergency will be declared. The plan should not classify a transportation accident more than 1.6 km (1 mile) from the facility.

#### **12.5.3.4 Detection of Accidents**

Acceptance is based on the verification that the applicant has committed to providing in the emergency plan adequate means for detecting and alerting operating staff of accidents. The information is to the degree necessary to ensure the effectiveness of the emergency plan. The applicant addresses the following areas:

1. For each accident, identification of the equipment and/or procedures for detecting and alerting the applicant of the accident.
2. For each item of equipment and/or procedure identified in Item 1 above, indication of how the accident will be detected and at what stage of the accident.
3. For each item of equipment identified in Item 1 above, identification of a procedure for maintenance and/or calibration.
4. Identification of procedures for identifying other dangers to safe operations (e.g., severe weather warnings).

#### **12.5.3.5 Mitigation of Consequences**

Acceptance should be based on the verification that the applicant has committed to providing in the emergency plan adequate measures for mitigation of consequences for each type of accident identified in SRP Section 12.5.3.3 above. Adequate measures include:

1. For each accident treated in the emergency plan, a brief description of the means and equipment provided for safe shutdown and for mitigating the consequences of each type of accident. Mitigation of consequences addresses both workers onsite and offsite, as well as the public offsite.

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2. In the event of a warning from an accident initiator of a potential malfunction/problem(s):
  - a. A description of the criteria that will be used to determine whether a single process or the entire facility will be shut down.
  - b. A description of the steps that will be taken to ensure a safe orderly shutdown of a single process or the entire facility.
  - c. A statement of the approximate time required to accomplish a safe shutdown of processes.

### **12.5.3.6 Assessment of Releases**

Acceptance should be based on the verification that the applicant has committed to providing in the emergency plan an adequate method of assessment of both radiological materials and nonradiological hazardous chemical releases for each type of accident identified in SRP Section 12.5.3.3 above. An acceptable submittal includes:

1. A description of the procedures to be used to assess the releases of radiological material and/or hazardous chemicals by estimating or measuring the release rate or source term.
2. A description of the procedure(s) used to obtain onsite and offsite data to confirm projected doses.
3. A list of references of any computer code used to project doses to the public or environment.

### **12.5.3.7 Responsibilities of Applicant**

Acceptance should be based on the verification that the emergency response organization and administration described by the applicant provide reasonable assurance of effective planning, implementation, coordination with offsite agencies, and control of emergency preparedness activities, and is based on the following:

1. The organizational structure and responsibilities and authority for each management, supervisory, and professional position are clearly defined, and staffing and resources are described and warranted to be sufficient to accomplish assigned tasks.
2. For facilities located on Department of Energy (DOE) sites, interfaces with DOE are clearly defined.
3. Interfaces with supporting groups, both onsite and offsite, are clearly defined.
4. Line managers and supervisors observe emergency preparedness activities to ensure site readiness to handle emergencies and to identify and correct problems.

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5. The onsite emergency response organization as described provides reasonable assurance of effective command and control of the site during the assessment, mitigation, and recovery phase of an accident.
6. Responsibility is assigned for the coordination of onsite and offsite radiation/hazardous material emergency response preparedness.
7. The emergency public information staff provides advance and ongoing information to the media and public on subjects that would be discussed during an emergency, such as radiation, chemical hazards, site operation, and site emergency plans.
8. The schedule of emergency preparedness procedure development provides for availability of procedures to support start-up and operation of new processes/facilities onsite.
9. Confirmation of mutual cooperation agreements existing with local agencies such as fire, police, ambulance/rescue, and medical units is provided.
10. Timely and effective action is taken to track and correctly identify emergency preparedness deficiencies and their root causes.

In addition, the applicant has assigned responsibility to assure that the emergency plan is developed and maintained current according to the emergency management program and its procedures. Acceptance should be based on the verification of this function and should include:

1. Identification of the means for ensuring that written emergency plan procedures are appropriately developed and implemented by:
  - a. Being prepared in such a manner to satisfy the criteria contained in the emergency management program.
  - b. Being controlled within the configuration management system described in Section 2.8 of this SRP.
  - c. Being distributed to all affected parties, including offsite organizations.
2. For maintaining the program, a description of the following: provisions for approving of the procedures, making and distributing changes to the procedures, and ensuring that each person responsible for an emergency response function has immediate access to a current copy of emergency procedures.
3. For facilities located on DOE sites, the applicant maintains communication with the DOE organization, to be cognizant of changes to the DOE Site Emergency Plan and the effects on the facility's emergency plan.

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### 12.5.3.8 Notification and Coordination

Acceptance is based on the verification that the applicant has committed to providing, in the emergency plan, appropriate notification and coordination plans for each type of accident classification described. The notification and coordination is planned so that unavailability of some personnel, parts of the facility, and some equipment would not prevent the notification and coordination. For facilities located on DOE sites, the notification and coordination plans include interactions with the DOE organization.

1. The applicant provides descriptive material that offers reasonable assurance that emergency notification procedures will enable the emergency organization to correctly classify emergencies, notify emergency response personnel, and initiate or recommend appropriate actions, based on the following:
  - a. Classification of events is consistent with the current emergency plan.
  - b. Notification procedures minimize distractions of shift operating personnel and include concise messages. Appropriate follow-up messages to offsite authorities are issued in a timely manner.
  - c. Information on the nature and magnitude of the hazards is made available to appropriate emergency response personnel.
  - d. Radiological and chemical source term data is made available to the command post, technical support center, emergency operations center, appropriate local and State officials, and designated NRC officials.
  - e. The applicant provides for offsite field-monitoring team data to be logged, compared with source term data, and used in the protective action recommendation process.
  - f. Protective action guides are available and used by appropriate personnel in a timely manner.
  - g. The emergency public information program ensures timely dissemination of accurate, reliable, and understandable information.
  - h. Systems are in place, if required, to alert onsite personnel and notify offsite organizations in the event of an emergency.
2. The applicant supplies descriptions of how and by whom the following actions are taken:
  - a. Decision to declare an alert or site area emergency.
  - b. Activation of onsite emergency response organization.

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- c. Prompt notification of offsite response authorities that an alert or site area emergency has been declared, including the applicant's initial recommendation for offsite protective actions (normally within 15 minutes).
  - d. Notification to the NRC Operations Center should not be later than 1 hour after a declared emergency.
  - e. Decision on what onsite protective actions to initiate.
  - f. Decision on what offsite protective actions to recommend.
  - g. Decision to request support from offsite organizations, including medical assistance for the treatment of injured and/or contaminated onsite workers, when appropriate.
  - h. Decision to terminate the emergency or enter recovery mode.
3. The applicant commits to providing the following to ensure proper notification and coordination:
- a. A description of the primary and any alternative onsite communication systems.
  - b. A description of the frequency of operational tests of the communication systems.

### **12.5.3.9 Information To Be Communicated**

Acceptance is based on the verification that the applicant has committed to providing, in the emergency plan, clear, concise information to offsite response organizations during accident situations previously identified. Areas include:

1. A description of the types of information to be provided concerning facility status, radioactive or hazardous releases, and protective actions.
2. For each accident treated in the emergency plan, a description of preplanned protective action recommendations the applicant makes to each appropriate offsite organization.
3. Identification of all offsite officials, including the NRC, to be notified, as a function of the classification of the event. For facilities located on DOE sites, DOE officials would also be identified.

### **12.5.3.10 Training**

Acceptance is based on the verification that the applicant has committed to providing, in the emergency plan, a training program for both onsite and offsite personnel as part of maintaining emergency preparedness capability.

1. The program contains performance objectives of the training, as shown in the following examples:

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- a. Familiarize appropriate personnel with the emergency plan through related emergency management procedures.
  - b. Provide instruction to individuals in their specific duties to ensure effective and expeditious response during an emergency.
  - c. Provide refresher training.
  - d. Provide the various emergency organization groups with required training to ensure an integrated and prompt response to an emergency situation.
2. The program ensures that emergency response personnel possess the necessary knowledge, skills, and qualifications. Selection of these personnel is based on the following:
- a. The similarity of their emergency response duties to their normal day-to-day authority and responsibilities.
  - b. Their ability to analyze data and determine appropriate actions in emergency situations.
3. The training includes:
- a. Information on what might be expected under unusual plant conditions (e.g., components and areas with high radiation or contamination levels, magnitudes of radiation or contamination increases, changed nuclide composition, etc.).
  - b. Discussion of the procedures applicable to the functional area.
  - c. A description of the emergency organization and the relationship of the functional area to the entire organization.
  - d. Communications.
  - e. Limits of authorities and responsibilities.
  - f. Protective action decision making.
  - g. For a facility located on a DOE site, applicable provisions of the DOE Site Emergency Plan and its interface with the facility emergency plan.
4. The program ensures that local support service organizations that could enter the site (fire/ambulance and rescue) are trained in onsite hazards and site access procedures.
5. The training offered to offsite protective action decision makers includes the relationship between plant conditions and protective measures.

6. The training offered to any mutual-aid pact members, such as hospital personnel and ambulance/rescue, police, and fire departments, includes the procedures for notification, basic radiation protection, and their expected roles.
7. The applicant has a formally documented and approved emergency plan training/retraining program description (procedure or training manual). The program contains the following elements:
  - a. The program specifies the training to be given to each position incumbent responsible for performing specific emergency response duties. Such positions are specified and include those personnel who prepare, maintain, and implement the emergency plan.
  - b. Training is specified for the use of specialized equipment such as respirators.
  - c. The program includes team training for those groups of personnel expected to perform coordinated response actions, and this training is focused on the most probable accident scenarios.

#### **12.5.3.11 Drills and Exercises**

Acceptance is based on the verification that the applicant has committed to conducting periodic drills and exercises in a manner that demonstrates the capability of the organization to plan and perform an effective response to an emergency situation.

1. "Exercises" are events that test the integrated capability and a major portion of the basic elements existing within the emergency plan and supporting organizations. If the facility is located on a DOE site, the responsible DOE organization should be involved in the exercise. Exercises are conducted on a biennial basis and offsite organizations are invited but are not required to participate.
2. "Drills" are supervised instruction periods aimed at testing, developing, and maintaining skills in particular operations. Drills are conducted by individual organizations, independent of the exercises. Offsite organizations generally are not invited to participate.
3. Periodic drills and exercises satisfy the following goals and criteria:
  - a. Task-related knowledge is demonstrated through periodic participation by all qualified individuals for each position in the emergency response organization.
  - b. Drill performance is assessed against specific scenario objectives, using postulated accidents that adequately test personnel, equipment, and resources, including previously identified weaknesses.
  - c. Effective player, controller, evaluator, and observer pre-drill briefings are conducted.

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- d. Data and direction provided by the controllers effectively maintain the time line and do not interfere with the emergency organization's response to exercise scenario events, except where safety considerations are involved.
  - e. Knowledgeable evaluators are used to identify and record participant performance, scenario strengths and deficiencies, and equipment problems.
  - f. During exercises simulation is minimized to permit maximum training benefit.
  - g. During exercises prestaging of equipment and personnel is minimized to realistically test the activation and staffing of emergency facilities.
  - h. Emergency exercises demonstrate that resources are effectively used to control the site, to mitigate further damage, and to control radiological/chemical releases; to perform required onsite activities under simulated radiation/airborne and/or waterborne environments and other adverse conditions; to provide accurate assessments and status during an accident; and to initiate recovery. In addition, for facilities located on DOE sites, the emergency exercises demonstrate effective coordination of activities with the responsible DOE organization.
  - i. Emergency drills demonstrate adequacy of specific operations, including:
    - (1) personnel protection measures, including controlling and minimizing hazards to individuals during events such as fires, medical emergencies, mitigation activities, search and rescue, and other similar events;
    - (2) onsite communications, which effectively support emergency response activities; and
    - (3) the emergency public information organization, which disseminates accurate, reliable, timely, and understandable information.
4. The applicant makes provisions for biennial onsite exercises to test responses to simulated emergencies and to conduct quarterly communications checks with offsite response organizations. Quarterly communications checks include the check and update of all necessary telephone numbers.
5. Critiques are conducted in a timely manner and evaluate the appropriateness of the emergency plan, procedures, facilities, equipment, personnel training, and overall effectiveness. The emergency plan includes a follow-up plan for correcting identified weaknesses and improving training effectiveness.

### **12.5.3.12 Recovery and Plant Restoration**

Acceptance is based on the verification that the applicant has committed to developing in the emergency plan procedures for restoring the facility to a safe status. The recovery and restoration plans include:

- 1. Assessment of the damage to and the status of the facility's capabilities to control radioactive material or hazardous chemicals.

2. Determination of the actions necessary to reduce any ongoing releases of radioactive or other hazardous chemicals and to prevent further incidents.
3. Accomplishment of the tasks to meet any required restoration action.
4. A description of the key positions in the recovery organization.

#### **12.5.3.13 Hazardous Chemicals**

Acceptance should be based on the verification that the applicant certified that it has met responsibilities under the Emergency Planning and Right To Know Act of 1986, Title III, Public Law 99-499.

#### **12.5.3.14 Comment from Offsite Response Organizations**

Acceptance should be based on the verification that the applicant allowed offsite response organizations expected to respond in case of an accident 60 days to comment on the emergency plan. The applicant provides any comments received from offsite response organizations to the NRC with the emergency plan.

#### **12.5.3.15 Changes to the Emergency Plan**

The applicant may make changes to an approved emergency plan without prior Commission approval as long as the changes do not decrease the effectiveness of the emergency plan and the changes are furnished to the NRC, in accordance with 10 CFR 76.5, and to affected offsite response organizations within 6 months after the change is made.

## **12.6 Evaluation Findings**

The staff's review should verify that sufficient information has been provided in the application to satisfy the intent of requirements in 10 CFR 76.35, "Contents of Application," and 10 CFR 76.36, "Renewals," with respect to the emergency management plan and that the information provided is consistent with the guidance in this SRP. On the basis of this information, the staff should be able to conclude that this evaluation is complete.

The staff could document the evaluation of the application as follows:

*The staff has reviewed the emergency management program for [name of facility] according to SRP Sections 12.3, 12.4, and 12.5. On the basis of the following findings, the staff concludes that the emergency management program is acceptable for development, implementation, and maintenance of an emergency plan and meets the requirements of 10 CFR 76.91.*

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*The applicant has appropriately addressed the functional areas involved in the emergency management program. The information contained in the emergency management program describes procedures for the development of an acceptable emergency plan. The emergency plan contains a description of licensed activities, the facility, and the types of accidents that might occur; information on classification of postulated accidents and procedures for notifying and coordinating with offsite authorities; information on emergency response measures and equipment and facilities available to respond to an emergency; and instructions on how the applicant should maintain emergency preparedness capability, including records and reports. In addition, the plan contains plans for restoring the facility to a safe condition.*

*On the basis of its review, the NRC has staff concluded that the emergency management program is acceptable to support the recertification.*

## 12.7 References

Code of Federal Regulations, *Title 10, Energy*, Part 76, "Certification of Gaseous Diffusion Plants."

Environmental Protection Agency (U.S.) (EPA). 400-R-92-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents." EPA: Washington, D.C. May 1992.

Nuclear Regulatory Commission (U.S.) (NRC). NRC/FCSS Policy and Guidance Directive FC 84-14, Rev. 1, "Radiological Contingency Planning Requirements and License Application Reviews." NRC: Washington, D.C. March 1994.

\_\_\_\_\_. NUREG-0696, "Functional Criteria for Emergency Response Facilities." NRC: Washington, D.C. February 1981.

\_\_\_\_\_. Regulatory Guide 3.67, "Standard Format and Content for Emergency Plans for Fuel Cycle and Materials Facilities." NRC: Washington, D.C. January 1992.